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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/574,858	04/06/2006	Akira Nakano	L8638.06106	5528

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EXAMINER	
GARCIA, FRANCIS Y	
ART UNIT	PAPER NUMBER
4185	

MAIL DATE	DELIVERY MODE
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Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No.	Applicant(s)	
	10/574,858	NAKANO ET AL.	
	Examiner	Art Unit	
	FRANCIS GARCIA	4185	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE *3* MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *06 April 2006*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-21* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-21* is/are rejected.

7)☒ Claim(s) *8* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *4/06/2006* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO/SB/08) Paper No(s)/Mail Date *4/6/2006*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application
6) ☐ Other: _____.

DETAILED ACTION

Claim Objections

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **the parts of the casing and maximum projection area** must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as “amended.” If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

3. **Claim 8** is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

4. **Claim 8** recites the limitation "wall and maximum projection" in line 5. There is insufficient antecedent basis for this limitation in the claim. Applicant doesn't define what is meant by the wall or the maximum projection in claim 8. Applicant positively refers to them but there is no prior mention in claim 1 or 8.

Claim Rejections - 35 USC § 102

1. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) The invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

2. **Claims 1, 7, 10-14 and 18** are rejected under 35 U.S.C. 102 (b) as being anticipated by **Osaka (Jap 2000359012).**

3. **Regarding claim 1,** Osaka discloses a hermetic compressor including: a **motor element** [37] within a **hermetic vessel** [35]; a **compression element** [36] driven by said motor element; and a suction **muffler** [44] made of synthetic resin which is linked

to said compression element, wherein at least a part of a **casing** [48] of said suction muffler, **skin layer** is **foam-molded** [column 8 line 45-50].

4. **Regarding claim 7**, Osaka discloses a hermetic compressor, wherein among a plurality of walls constituting said casing, a plate thickness of the wall in which the maximum projection area is obtained is thicker than plate thicknesses of the other plate thicknesses [Fig 3 attached on page 11].

5. **Regarding Claim 10**,Osaka discloses a hermetic compressor, wherein said suction **muffler[44]** includes a sound **attenuation space[49]** formed inside said **casing[48]**, a **first linkage path[50]** to link said **compression element[36]** and said **sound attenuation space[49]**, and a **second linkage path[51]** to link an inner portion of said **hermetic vessel[35]** and said sound attenuation space, and wherein a wall of said casing, which is close to at least one of said **motor-element[37]**, said compression element, an open end within said sound attenuation space of said first linkage path, and an open end within said sound attenuation space of said second linkage path is designed so as to have at least one of a configuration that it is thicker than the other walls of said casing and a configuration that it is higher in foaming magnification.

6. **Regarding claim 11**, Osaka discloses a hermetic compressor, wherein a **lubricating oil** [46] is stored in said hermetic vessel, and at least one of walls of said casing of said suction muffler to which said lubricating oil is supplied is designed so as to have at least one of a configuration that it is thicker than the other walls of said casing and a configuration that it is higher in foaming magnification [Fig 3 on page 11].

7. **Regarding claim 12**, Osaka discloses a hermetic compressor, wherein the casing of said suction muffler has a suction muffler body and a **suction muffler cover** [48], and wherein a bonding portion between said suction muffler body and said suction muffler cover has a foaming magnification which is relatively lower as compared with portions except said-bonding portion, or it is not foam-molded [Fig 3 attached on page 11].

8. **Regarding claim 13**, Osaka discloses a hermetic compressor, wherein the linkage path to link the inner portion of said hermetic vessel and the sound attenuation space of said suction muffler is formed integrally with the farthest element from the motor element, among a plurality of elements constituting the casing of said suction muffler [Figure 2 page 3 in Osaka].

9. **Regarding claims 14 and 18**, Osaka discloses a hermetic compressor, wherein a part of the casing of said suction muffler is interposed between a **cylinder head [38]** and a **valve plate [41]** which constitute said **compression element [36]**, and said interposed part of said casing has a relatively low foaming magnification or it is not foam-molded, wherein a refrigerant gas compressed by said compression element is R600a [claim 8].

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

> invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.
> The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art only under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 103(a) might be overcome by: (1) a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not an invention "by another"; (2) a showing of a date of invention for the claimed subject matter of the application which corresponds to subject matter disclosed but not claimed in the reference, prior to the effective U.S. filing date of the reference under 37 CFR 1.131; or (3) an oath or declaration under 37 CFR 1.130 stating that the application and reference are currently owned by the same party and that the inventor named in the application is the prior inventor under 35 U.S.C. 104, together with a terminal disclaimer in accordance with 37 CFR 1.321(c). This rejection might also be overcome by showing that the reference is disqualified under 35 U.S.C. 103(c) as prior art in a rejection under 35 U.S.C. 103(a). See MPEP § 706.02(l) (1) and § 706.02(l) (2).

10. **Claim 8** is rejected under 35 U.S.C. 103(a) as being obvious over **Osaka (Jap 2000359012)** in view of **Jensen (U.S 6,017,197).**

11. **Regarding claim 8,** Osaka discloses the hermetic compressor but fails to disclose how it is put together.

12. However, Jensen shows a compressor casing wherein said casing is produced by combining at least two parts, and said two parts are separated and divided in a

direction substantially vertical to the wall in which the maximum projection area of said casing is obtained.

13. It would be obvious to one of ordinary skill in the art to combine the muffler from Osaka with the casing from Jensen to satisfy the limitations. Since the bonding surface is placed on the side, the foaming magnification of the surface occupying most of the surface area can be made higher, thereby improving the thermal insulating property and making the suck efficiency higher.

14. **Claims 2, 4-5, 6 and 19-21** are rejected under 35 U.S.C. 103(a) as being obvious over **Osaka (Jap 2000359012)** in view of **Arai (U.S 7,107,601).**

15. **Regarding claims 2,20 and 21 , Osaka** discloses the compressor stated above, but fails to disclose wherein a bubble diameter obtained by said foam-molding is 50 micro m or less, a manufacturing method of a suction muffler, which foam-molds at least a part of a casing of a 5 suction muffler made of synthetic resin for a hermetic compressor, wherein a section area of a gate serving as a resin supplying portion to cavities inside a die is equal to or greater than 70% of a square of a plate thickness of said casing; a muffler wherein foam-molds at least a part of a casing of a suction muffler made of synthetic resin for a hermetic compressor, wherein two or more gates serving as resin supplying portions to cavities inside a die are installed for at least one unit.

16. However, **Arai** teaches bubble diameter of different sizes and in ranges that would accommodate the specific measurement of the application [column 15 lines 40 to 49]. It talks about foam molding of synthetic resin, wherein a section area of a gate serving as a resin supplying portion to cavities inside a die is equal to or greater than

70% of a square of a plate thickness of said casing; it has examples of two or more gates serving as resin supplying portions to cavities inside a die are installed for at least one unit [column 15 lines27-40].

It would have been obvious to one of ordinary skill to modify the teachings of **Osaka** with **Arai** since it is known in the art of mufflers to use foam molding to increase efficiency and make attenuate the noise.

17. **Regarding claims 4- 5 and 6, 19, Osaka** discloses the compressor mentioned above, but fails to illustrate a thickness of said skin layer is 30% or less of a plate thickness in the thinnest portion and wherein a foaming magnification of said foam-molding is 1.2 times or more, foam-molds at least a part of a casing of a suction muffler made of synthetic resin for a hermetic compressor, wherein in said molding course, a core-back is used to move a part of a die, enlarge a cavity and make a plate thickness .

However, **Arai** illustrates the skin portion to where the skin is at the necessary percentage [Fig 8 Arai] and also goes into detail on foaming magnification and how to achieve the desired effects and how to do the molding[column 5 line 55 through column 6] and displays a core back method of foam molding [fig.3 Arai]. It would have been obvious to one of ordinary skill to modify the teachings of **Osaka** with **Arai** to make the skin thickness of the muffler to satisfy the claim limitation. Doing so would reduce the noise and increase efficiency.

18. **Claim 3** is rejected under 35 U.S.C. 103(a) as being obvious over **Osaka (Jap 2000359012)** in view of **Yamaguchi (U.S 6,359,364 B1).**

19. **Regarding claim 3 , Osaka** discloses the compressor stated above, but fails to disclose a compressor wherein a material of said foam-molding is crystal synthetic resin

However, Yamaguchi teaches molding using crystal synthetic resin [column 3 65-67].

It would have been obvious to one of ordinary skill to modify the teachings of **Osaka** with **Yamaguchi** to use crystal synthetic resin for foam molding. Doing so improves the reliability and enables the stable operation of the compressor.

20. **Claim 9** is rejected under 35 U.S.C. 103(a) as being obvious over **Osaka (Jap 2000359012)** in view of **Chintamani (U.S 20010031208A1).**

Regarding claim 9, Osaka discloses the compressor stated above, but fails to disclose a compressor wherein plate thicknesses of a corner of said casing and a portion having a high curvature are relatively larger than the other portions.

However, **Chintamani** teaches a muffler with a corner bigger than the no the dimensions of the wall [Fig 5 Chintamani]. It would have been obvious to one of ordinary skill to modify the teachings of **Osaka** with **Chintamani** to make the corner of his muffler bigger. Doing so the flow resistance of the resin at the time of the molding is dropped and the growth of the bubble through the foaming gas is impelled.

21. **Claim 15** is rejected under 35 U.S.C. 103(a) as being obvious over **Osaka (Jap 2000359012)** in view of **Makoto** (**2001-231485)** as stated by applicant**.**

22. **Regarding claim 15, Osaka** discloses a compressor as stated above and wherein a part of the casing of said suction muffler is interposed between a cylinder

head and a valve plate which constitute said compression element, but fails to have the thickness of said interposed part of said casing is thicker than the other portions.

However**, Makoto** as stated by applicant has this teaching wherein the thickness of said interposed part of said casing is thicker than the other portions. It would have been obvious to one of ordinary skill to modify the muffler in **Osaka** with **Makoto** teachings to make the interposed part of the muffler bigger.
Doing so would maintain the strength of the engaged portion, which enables the muffler to be
surely held.

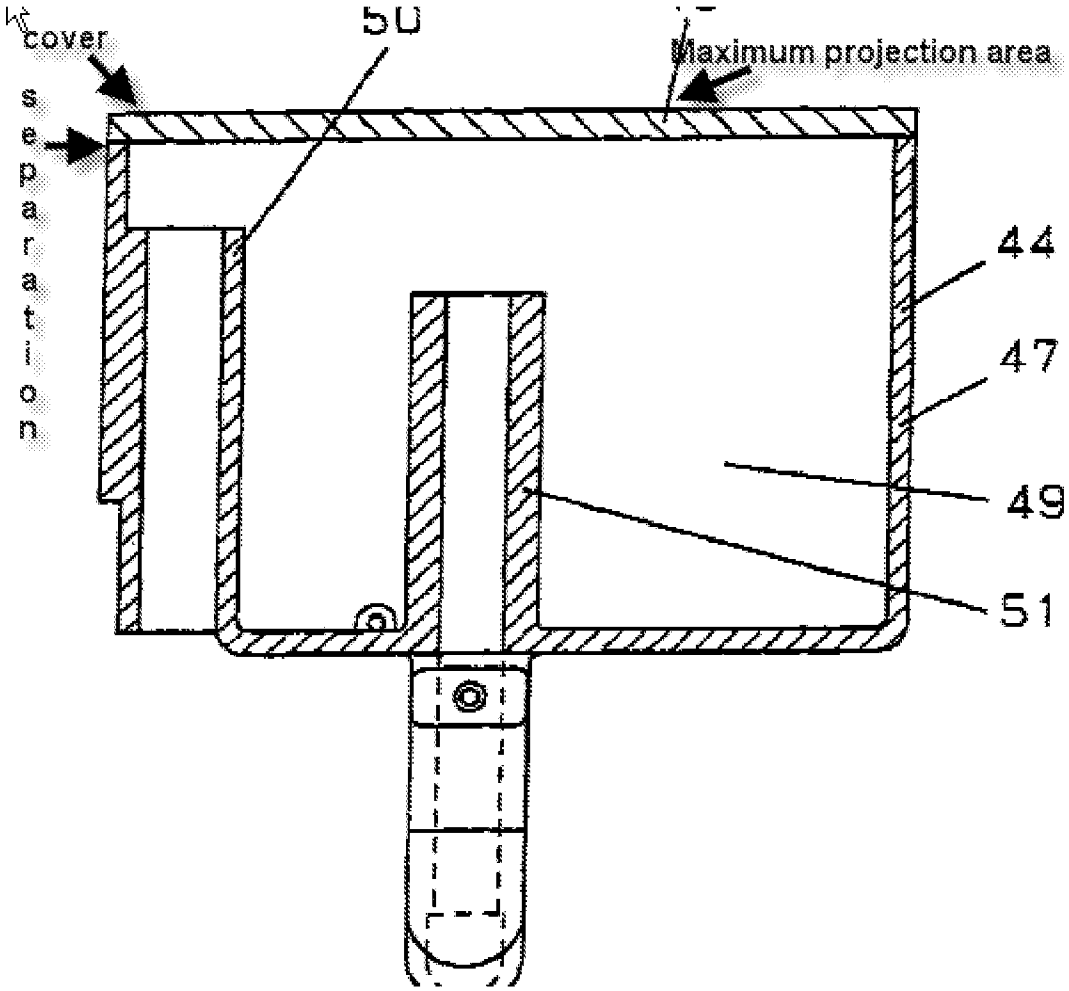
23. **Claims 16 and 17** are rejected under 35 U.S.C. 103(a) as being obvious over **Osaka (Jap 2000359012)** in view of **Akashi (U.S 2005/0265863).**

Regarding claims 16 and 17, Osaka discloses a compressor as stated above, but fails to disclose a hermetic compressor wherein the motor element wherein said motor element is inverter-driven at a rotation number including a rotation number less than a commercial power supply frequency and wherein said rotation number is 20r/sec or less.

However **Akashi** teaches the motor element wherein said motor element is inverter-driven at a rotation number including a rotation number less than a commercial power supply frequency and wherein said rotation number is 20r/sec or less[Paragraph 0029,0097]. It would have been obvious to one of ordinary skill to modify the compressor of **Osaka** with the teachings of **Akashi** to fulfill the claim limitations. Doing so would reduce the noise and cause a drop in refrigerant fluid velocity.

Conclusion

2. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The following references are cited for disclosing related limitations of the applicant's claimed and disclosed invention: **Yamaguchi et al. (U.S 6,359,364 B1), Jensen et al. (U.S 6,017,197**), **Osaka et al.(Jap 2000359012), Arai et al. (U.S 7,107,601), Chintamani et al. (U.S 20010031208A1), Makoto et al.(Jap 2001231485), Akashi et al. (U.S 2005/0265863).**



3. Any inquiry concerning this communication or earlier communications from the examiner should be directed to FRANCIS GARCIA whose telephone number is

(571)270-7105. The examiner can normally be reached on Monday thru Friday 9-5 p.m. EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Terrell McKinnon can be reached on (571)272-4797. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free)? If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/FRANCIS GARCIA/
Examiner, Art Unit 4185

/Terrell L Mckinnon/

Supervisory Patent Examiner, Art Unit 4185